

**In the Claims:**

- 1 Please cancel, without prejudice, claims 2, 6, 7, 15, 19 and 20.
- 2 Please amend the remaining claims as follows:
  - 3 1. (currently amended) A disk drive comprising:
    - 4 (a) a disk comprising a plurality of tracks, each track comprising a plurality of data
    - 5 sectors;
    - 6 (b) a head actuated radially over the disk, the head for generating a read signal while
    - 7 reading data from at least one of the data sectors;
    - 8 (c) a sampling device for sampling the read signal to generate read signal sample values;
    - 9 (d) a sequence detector for detecting an estimated data sequence from the read signal
    - 10 sample values;
    - 11 ~~(e)~~(e) a buffer for buffering read data associated with the read signal;
    - 12 ~~(d)~~(f) a disk controller for processing a read command received from a host computer by:
    - 13 positioning the head over a selected data sector to generate a first read signal;
    - 14 sampling the first read signal to generate a first sequence of read signal sample
    - 15 values;
    - 16 detecting a first estimated data sequence using the sequence detector from the first
    - 17 sequence of read signal sample values;
    - 18 storing in the buffer ~~first read data associated with the first read signal~~the first
    - 19 estimated data sequence;
    - 20 if a read error occurs:
      - 21 repositioning the head over the selected data sector to generate a second read
      - 22 signal;
      - 23 sampling the second read signal to generate a second sequence of read signal
      - 24 sample values;
      - 25 detecting a second estimated data sequence using the sequence detector from the
      - 26 second sequence of read signal sample values;

27                    averaging ~~second read data associated with the second read signal~~ the second  
28                    estimated data sequence with the first ~~read data~~ estimated data sequence stored  
29                    in the buffer to generate an averaged estimated data sequence ~~read data~~;  
30                    storing the averaged ~~read data~~ estimated data sequence in the buffer; and  
31                    processing the averaged ~~read data~~ estimated data sequence stored in the buffer to  
32                    recover the selected data sector.

1    2.    (canceled)

1    3.    (currently amended) The disk drive as recited in ~~claim 2~~ claim 1, wherein the disk  
2           controller implements an error correction code (ECC) for detecting and correcting errors  
3           in the averaged ~~binary bits~~ estimated data sequence.

1    4.    (currently amended) The disk drive as recited in claim 3, wherein:  
2           (a) the averaged estimated data sequence comprises averaged binary bits;  
3           ~~(a)~~ (b) the averaged binary bits are grouped into ECC symbols;  
4           ~~(b)~~ (c) a reliability metric is generated for each ECC symbol in response to a reliability  
5           derived from averaging the binary bits; and  
6           ~~(c)~~ (d) the disk controller processes the reliability metrics to augment the ECC.

1    5.    (original) The disk drive as recited in claim 4, wherein:  
2           (a) at least one erasure pointer is generated from the reliability metrics; and  
3           (b) the disk controller processes the erasure pointer to increase the number of correctable  
4           ECC symbols.

1    6.    (canceled)

1 7. (canceled)

1 8. (currently amended) The disk drive as recited in ~~claim 7~~claim 1, ~~wherein the read channel~~  
2 ~~comprises~~further comprising:  
3 (a)an equalizer filter for filtering the ~~averaged~~read signal sample values to ~~generated~~  
4 generate equalized read signal sample values, wherein the sequence detector detects the  
5 estimated data sequences from the equalized sample values; ~~and~~  
6 (b)~~a sequence detector for detecting the estimated data sequence from the equalized read~~  
7 ~~signal sample values.~~

1 9. (original) The disk drive as recited in claim 1, wherein the disk controller adjusts at least  
2 one parameter of the disk drive prior to rereading the selected data sector.

1 10. (original) The disk drive as recited in claim 9, wherein the disk controller adjusts a read  
2 channel parameter.

1 11. (original) The disk drive as recited in claim 9, wherein the disk controller adjusts a servo  
2 control parameter.

1 12. (original) The disk drive as recited in claim 11, wherein the disk controller adjusts a  
2 tracking offset to at least two different settings wherein for each tracking offset setting  
3 the disk controller performs at least one reread of the selected data sector to generate the  
4 averaged read data.

1 13. (original) The disk drive as recited in claim 12, wherein for each tracking offset setting  
2 the disk controller performs multiple rereads of the selected data sector to generate the  
3 averaged read data.

14. (currently amended) A method of recovering an errant data sector in a disk drive, the disk drive comprising a disk having a plurality of tracks, each track comprising a plurality of data sectors, a head actuated radially over the disk, the head for generating a read signal while reading data from at least one of the data sectors, a sampling device for sampling the read signal to generate read signal sample values, a sequence detector for detecting an estimated data sequence from the read signal sample values, and a buffer for buffering read data associated with the read signal, the method comprising the steps of:

(a) receiving a read command from a host computer;

(b) positioning the head over a selected data sector to generate a first read signal;

(c) sampling the first read signal to generate a first sequence of read signal sample values;

(d) detecting a first estimated data sequence using the sequence detector from the first sequence of read signal sample values;

~~(e)~~(e) storing in the buffer the first estimated data sequence ~~first read data associated with the first read signal;~~

if a read error occurs:

~~(d)~~(f) repositioning the head over the selected data sector to generate a second read signal;

(g) sampling the second read signal to generate a second sequence of read signal sample values;

(h) detecting a second estimated data sequence using the sequence detector from the second sequence of read signal sample values;

~~(e)~~(i) averaging the second estimated data sequence ~~second read data associated with the second read signal~~ with the first read data ~~estimated data sequence~~ stored in the buffer to generate an averaged read data ~~estimated data sequence;~~

~~(f)~~(j) storing the averaged read data ~~estimated data sequence~~ in the buffer; and

27            ~~(g)~~(k) processing the averaged ~~read data~~estimated data sequence stored in the buffer  
28            to recover the selected data sector.

1    15.    (canceled)

1    16.    (currently amended) The method as recited in ~~claim 15~~claim 14, further  
2            ~~comprising~~wherein the step of processing the averaged estimated data sequence  
3            comprises the step of using an error correction code (ECC) for detecting and correcting  
4            errors in the averaged ~~binary bits~~estimated data sequence.

1    17.    (currently amended) The method as recited in claim 16, wherein the averaged estimated  
2            data sequence comprises averaged binary bits, and the step of using the ECC for  
3            detecting and correcting errors further comprising the steps of:  
4            (a) grouping the averaged binary bits into ECC symbols;  
5            (b) generating a reliability metric for each ECC symbol in response to a reliability  
6            derived from averaging the binary bits; and  
7            (c) processing the reliability metrics to detect and correct errors in the averaged  
8            binary data.

1    18.    (original) The method as recited in claim 17, further comprising the steps of:  
2            (a) generating at least one erasure from the reliability metrics; and  
3            (b) processing the erasure pointer to increase the number of correctable ECC  
4            symbols.

1    19.    (canceled)

1    20.    (canceled)

- 1 21. (currently amended) The method as recited in ~~claim 20~~claim 14, further comprising the  
2 steps of:
- 3 (a)filtering the ~~averaged~~read signal sample values to generated equalized read signal  
4 sample values, wherein the sequence detector detects the estimated data sequences  
5 from the equalized sample values; and  
6 (b)~~detecting the estimated data sequence from the equalized read signal sample~~  
7 ~~values.~~
- 1 22. (original) The method as recited in claim 14, further comprising the step of adjusting at  
2 least one parameter of the disk drive prior to rereading the selected data sector.
- 1 23. (original) The method as recited in claim 22, wherein the step of adjusting a parameter of  
2 the disk drive comprises the step of adjusting a read channel parameter.
- 1 24. (original) The method as recited in claim 22, wherein the step of adjusting a parameter of  
2 the disk drive comprises the step of adjusting a servo control parameter.
- 1 25. (original) The method as recited in claim 24, further comprising the steps of adjusting a  
2 tracking offset to at least two different settings wherein for each tracking offset setting  
3 rereading the selected data sector at least once to generate the averaged read data.
- 1 26. (original) The method as recited in claim 25, wherein for each tracking offset setting  
2 rereading the selected data sector multiple times to generate the averaged read data.